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LETTER OFFERING COMMENTS ON DRAFT FEASIBLITY STUDY REPORT LIGHTER AMPHIBIOUS RESUPPLY CARGO (LARC) 60 MAINTENANCE AREA FORT STORY VA
12/15/2005
COMMONWEALTH OF VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

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December 15, 2005

Joanna G. Bateman
Environmental & Natural Resources Specialist
U.S. Army Transportation Center
ATTN: IMNE-EU-PW-E (Bateman)
1407 Washington Blvd.
Fort Eustis, Virginia 23604

Re: **Draft Feasibility Study Report; LARC 60 Maintenance Area; Fort Story, VA**

Dear Ms. Bateman:

Thank you for the opportunity to comment on the *Draft Feasibility Study Report; LARC 60 Maintenance Area (Draft FS Report)* submitted March 21, 2005 by your consultant, Mr. Anthony K. Pace with Malcolm Pirnie, Inc. The Department of Environmental Quality's Office of Remediation Programs (the Department) has completed its review of the subject document and comments are enclosed.

If you have questions concerning any of the above, please contact me at (804) 698-4131 or you may e-mail me at gweng@deq.virginia.gov.

Sincerely,

Garwin W. Eng
Environmental Engineer Senior
ORP, FFR

Enclosure

c: Maria A. Pino – EPA Region III (3HS11)
Milton L. Johnston – TRO, DEQ
Durwood H. Willis – DEQ
Patricia A. McMurray – DEQ
Erica S. Dameron – DEQ
Fort Eustis Correspondence File

Draft Feasibility Study Report; LARC 60 Maintenance Area
Fort Story, VA
Department of Environmental Quality Comments

Comments are referenced in accordance with the *Draft FS Report* by section, paragraph (counting from the beginning of the section), sentence (counting from the beginning of the paragraph), and page number.

1. ES.2, paragraph 2, 1st bullet, page ES-3 – Please clarify the meaning of "Prevent present human consumption…." The word "present" appears to be a typographical error.

2. 1.3.2, pages 1-3 through 1-4 – Although the *Groundwater Pilot Study Report* (*Pilot Study*) is included as Appendix D, please indicate why the *Pilot Study* is not included with this list of previous investigations.

3. 1.3.2.4, page 1-5 – The 10,000 gallon UST was installed in 1983 (per section 1.3.1) and had been removed by the time of the ETI investigation in 1995. Please specify when the UST was removed and the results of that removal.

4. 1.3.2.5, **Nature and Extent of Contamination**, Groundwater, paragraph 2, page 1-8 – Although indicated in the Table of Contents, please state here that Figure 1-3 shows only petroleum-related compounds and Figure 1-4 shows only chlorinated solvents and metals. (Also see comment 23 below.)

5. 1.3.2.5, **Human Health Risk Assessment**, paragraph 3, page 1-15 – For clarity, please reformat the Human Health Risk Assessment Summary table such that the entire table is on a single page.

6. Section 2, paragraph 1, 1st sentence, page 2-1 – In addition to cost, remedial alternatives are selected based on implementability and effectiveness.

7. 2.1, paragraph 2, 2nd sentence, page 2-1 – Although listed later in the *Draft FS Report*, please revise this sentence to include MIBK and 2-methylnaphthalene.

8. 2.1, paragraph 2, last sentence, page 2-1 – Please specify what the original screening criterion was for MIBK and what the current RBC level is.

9. 2.1, paragraph 3, 3rd sentence, page 2-1 – Please specify what "regulatory criteria" were used to compare with the 2003 and 2004 groundwater monitoring data and how they were developed. In addition, Appendix D indicates that the following constituents were also detected above EPA Region III tap water RBCs (or other screening criteria); ethylbenzene, xylenes, isopropyl benzene, cyclohexane, trans-1,2-dichloroethylene, and methylcyclohexane. (Also see comment 35 below.)

10. 2.1, paragraph 6, page 2-2 – Although 2-methylnaphthalene may not account for a substantial portion of the risk, this is insufficient justification to not include it as a COC. (Also see comment 15 below.)

11. 2.1, paragraph 7, pages 2-2 through 2-3 – Please provide additional support for removing antimony, arsenic, manganese, and iron from the list of COCs. The Groundwater Flexibilities statement and related information (previously provided to you) may provide some guidance for the development of lines of evidence. (Also see comment 17 below.)

12. 2.2.3, paragraph 1, page 2-5 – Please revise this sentence to read "...have been compiled...."

13. 2.3.1, **Virginia Groundwater Quality Standards**, page 2-6 – Please correct the reference for Virginia's equivalent of federal MCLs. In Virginia, both MCLs and SMCLs are contained in the Department of Health's *Waterworks Regulations* (see 12 VAC 5-590-10 to 1280). The statutory basis for the *Waterworks Regulations* is found in Chapter 6 of Title 32.1 of the Virginia Code, *Environmental Health Services* (see Va. Code Ann.§§ 32.1-163 to 248.2). In the absence of MCLs/SMCLs, other health-based standards or criteria, or best professional judgement based on risk assessment, may be employed. Where groundwater that is a potential drinking water source discharges to surface water, the cleanup level at the discharge point would be the more stringent of either the MCL/SMCL or a discharge limit based on the *Water Quality Standards*. (Also see comment 24 below.)

14. 2.3.2, paragraph 2, 4th sentence, page 2-7 – This proposes to establish PRGs at the primary MCLs for those COCs that have one. Since the proposed PRGs are higher than the screening criteria, please verify that the proposed PRGs will be protective of human health and the environment. Revised risk calculations using the proposed PRGs (and including all COPCs that exceeded screening criteria) will need to be conducted. (Also see comment 16 below.)

15. 2.3.2, paragraph 2, 5th sentence, page 2-7 – Since there is no MCL for 2-methylnaphthalene, please develop a risk-based PRG for this COC as well. (Also see comments 10 above and 16 below.)

16. 2.3.2, paragraph 2, 7th and 9th sentences, page 2-7 – These state that toluene, benzene, bromodichloromethane, and chloroform will not be included in the list of COCs because these constituents were detected at concentrations below MCLs (but above screening criteria) in recent samples. Before these constituents can be excluded as COCs, please verify (via a revised risk assessment) that these constituents will not result in excessive risks or hazards (individual or total). The revised risk assessment will need to account for the COCs at the proposed PRGs as well. (Also see comment 14 above.)

17. 3.1, paragraph 3, 7th and 8th bullets, page 3-3 – As indicated in comment 11 above, inorganic contaminants may need to be addressed. Therefore, the technologies described in these bullets may be applicable at this site.

18. Section 4, paragraph 4, page 4-1 – The list of retained process options provided in section 3.3 includes discharge to a POTW. However, the list of alternatives does not include this option. Please clarify this discrepancy.

19. 5.1.7, paragraph 4, last sentence, page 5-4 – Please provide the justification for using a discount rate of 3%.

20. 5.2.2.2, **Chemical-specific ARARs**, last sentence, page 5-6 – This refers to "To-Be-Considered guidance values for inorganics." Although explanations are provided in section 2.1 for not including inorganics in the list of COCs, there is no discussion of TBC guidance values for inorganics provided anywhere in section 2 of the *Draft FS Report*. Please clarify to what this sentence is referring.

21. 5.2.3.2, **Chemical-specific ARARs**, 2nd sentence, page 5-9 – Please revise this to read "These ARARs can be met…."

22. 6.1, pages 6-1 through 6-2 – Please correct the use of the plural "Alternatives" when referring to only one Alternative.

23. Figures 1-3 and 1-4 – Please indicate in the titles that only petroleum-related compounds and chlorinated solvents and metals, respectively, are shown on each figure. (Also see comment 4 above.)

24. Table 2-1 – In Virginia, both MCLs and SMCLs are contained in the Department of Health's *Waterworks Regulations* (see 12 VAC 5-590-10 to 1280). The statutory basis for the *Waterworks Regulations* is found in Chapter 6 of Title 32.1 of the Virginia Code, *Environmental Health Services* (see Va. Code Ann.§§ 32.1-163 to 248.2). In the absence of MCLs/SMCLs, other health-based standards or criteria, or best professional judgement based on risk assessment, may be employed. Where groundwater that is a potential drinking water source discharges to surface water, the cleanup level at the discharge point would be the more stringent of either the MCL/SMCL or a discharge limit based on the *Water Quality Standards*. (Also see comment 11 above.)

25. Table 2-3 – The development of the list of COCs is unclear. COPCs resulting from the *RI*, sampling conducted since the *RI*, and the *Pilot Study* are inconsistent. Therefore, the Department recommends developing a table that starts with the list of COPCs resulting from the *RI* with successive columns showing the removal or addition (with reasons or cross-references for changes) of COPCs. For example, the 2nd column could include those additional constituents that were detected above screening criteria during the 2003 sampling event. Finally, the last column would show only those constituents for which PRGs would be developed (i.e., the COCs).

Although numbered consecutively with the preceding, the following comments refer to the *Groundwater Pilot Study Report, LARC 60 Maintenance Area* (*Pilot Study*) provided in Appendix D of the *Draft FS Report*.

26. General – The list of COCs provided in various sections of the *Pilot Study*, Table 1, Table 4, and Table 5 do not correspond with one another. Please clarify these discrepancies. (Also see comment 25 above.)

27. 2.1, paragraph 3, 1st sentence, page 2 – The reference to $KMnO_4$ appears to be an error. The correct reference should probably be "$NaMnO_4$" or just "permanganate."

28. 3.1, paragraph 1, page 5 – This states that $NaMnO_4$ was used instead of $KMnO_4$ as specified in the *Pilot Work Plan Addendum*. Please provide the reason for this change.

29. 3.2, **2nd Injection Event**, paragraph 2, page 6 – This states that 55 gallons of reagent were injected into each injection point then 275 gallons per point later. Please clarify this discrepancy.

30. 4.1, **Pre-Injection Monitoring Well Sampling**, 6th sentence, page 7 – Please specifically state that, pursuant to the *Draft Work Plan Addendum* (May 2003), MW-117 was sampled only for iron and chlorides on July 25, 2003 and that the January 2003 VOC data will be used as the pre-injection data for this well.

31. 4.3, **Rebound Monitoring – 2nd Injection Event,** Chlorides, page 10 – Please provide an explanation for conducting rebound monitoring for only four weeks. Pursuant to the *Draft Work Plan Addendum*, rebound monitoring is to be conducted until no visible permanganate is in the well. Also, it appears that the high chlorides concentrations (as stated in the following section) would have indicated the need for continued rebound monitoring beyond the fourth week.

32. 4.3, **Rebound Monitoring – 2nd Injection Event,** Chlorides, paragraph 1, page 10 – Please correct this incomplete sentence.

33. 4.4, paragraph 1, page 12 – Please provide additional details concerning the 2004 site-wide groundwater monitoring event, e.g., exact date of the event, summary of analytical parameters, etc.

34. Table 6 – Please specify units of measure.

35. Table 6 – Many of the RBCs values provided appear to be incorrect. Please indicate whether the actual RBC tap water values or adjusted values (for screening levels) are provided.